

ABSTRACT

DIGITAL LOOP FOR REGULATING DC/DC CONVERTER WITH SEGMENTED SWITCHING

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[0070] A power control circuit is provided containing a switch array, which includes segmented switches, a flying capacitor, an output voltage terminal, a feedback loop, and a digital voltage regulator block. The digital voltage regulator block includes an A/D converter, an encoder, an add-subtractor, and a gate logic. These power control circuits do not include pass transistors. A method is also provided, where the charge pumps of the power control circuit are operated in two-phase cycles including a charging phase and a pumping phase. The power control circuit is controlled in both of these phases, thereby reducing the ripple of the output voltage.